In the Drawings

A replacement sheet for Fig. 2 is provided herein to correct the numbering and labeling of digital delay 216 and look up table 222. A label "drift estimates" is added at the outputs of I and Q latches 232 and 234.

REMARKS

Claims 1-9 were pending in the Application. Claims 1 and 2 were allowed, Claims 3-9 were rejected under 103(a) as unpatentable over Abraham (US 2004/0142701), and in view of others. By this amendment, Claims 3, 6, and 7, are amended. No new matter is introduced by these amendments.

This Applicant noticed some minor errors in the Specification on Page 8, and corresponding errors in Fig. 2, especially as concerns the digital delay 216. It was erroneously labeled "lookup table 218", and lookup table 222 was incorrectly given element number 216. The Specification is therefore amended herein and a replacement sheet for Fig. 2 is offered.

The Office Action observes that Claims 3-9 did not recite any limitations of operating in standby mode as in Claim 1. As a consequence, the claims read on the cited prior art. So, Claims 3, 6, and 7, are amended herein to more affirmatively and clearly state the distinguishing interactions and circuit elements that operate before the navigation receiver is initialized. Such elements are key to speeding up the initialization by reducing the frequency uncertainty of a local oscillator that has not yet locked up to the precise timing provided by the GPS satellites during tracking.

In Claim 3, the last element is amended to recite, "a local oscillator frequency-uncertainty reducing circuit that operates

before said navigation receiver is initialized, and for speeding up initialization by using a drift estimate represented at said I-correlation and Q-correlation outputs". In Fig. 1, this corresponds in software implementations to steps 118 and 120. The Specification describes the circuitry on Page 9, line 24, to Page 10, line 6. The host is described in the Specification as being the "circuit" recited in Claim 3, and its function was originally disclosed in the Specification at Page 6, line 20, to Page 7, line 13.

Claims 6 and 7 are similarly amended to limit to mobile telephones in their standby modes.

The cited prior art of Abraham (US 2004/0142701), Eberlein, et al. (US 6,973,121), and Abraham, et al. (US 6,819,707) do not appreciate nor operate when the mobile telephones are in standby mode. They each mention NCO's, cell phones, correlators, I and Q, VCO, initialization, etc., but in any combination they never address the capturing and using only the synchronization bursts that occur in standby mode.

Figs. 1 and 2 and the Specification here describe using twenty 1-msec accumulation periods to compute estimates of the frequency drift of a 27.456 MHz MCLK. Twenty estimates can be averaged to produce a signal drift estimate. A numeric controlled oscillator (NCO) is clocked by the drifting MCLK, and the NCO's 4-MSB's are used to index lookup tables for conversion to sinewaves and cosinewaves. Reconstructing the NCO output

count as sinewave magnitudes allows them to be mixed with the VCO output for phase comparisons. The resulting I-mix and Q-mix signals are accumulated and held in I-latch and Q-latch as drift estimates. These estimates can then be used by the navigation receiver to narrow the range of its starting frequency searches because the frequency uncertainty of MCLK is reduced.

The methods described in the Specification allow any VCO frequency up to the MCLK frequency to be compared 1:1 with a frequency synthesized by the NCO from the MCLK. The frequency synthesized by the NCO tracks the MCLK error drift. When the ideal NCO value is used, the actual frequency difference in MCLK counts will be accumulated.

Abraham is different. It sounds similar by saying in the Abstract that it uses "a conventional oscillator in a cellular telephone transceiver as a source of a reference signal for a GPS receiver." But if the cellular telephone transceiver is in standby mode, its conventional oscillator is not in constant instantaneous lock with the cellular system. The in-between drift is enough to invalidate the cell phone's oscillator as a good-enough source to train the GPS reference frequency. So embodiments of the present invention correlate and accumulate the errors only during the bursts, and reconstruct analog signals using tables so analog mixers can be used to extract the difference frequency.

Should the Examiner be of the opinion that a telephone conference with Applicant's attorney would expedite matters, they are invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Dated: 02/22/2007

By: _____
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_____ 2/22/2007
Signature Date